

Small Business Economic Impact Statement

Introduction

Last year, in response to a request from stakeholders representing construction site/work zone workers on foot, the Department of Labor and Industries (L&I) began a process for developing rules to protect construction site/work zone workers on foot from vehicular hazards on job sites.

The need for such rules is apparent when national and state injury statistics are examined. Nationally, in the highway and street construction industry (SIC 1611) alone, more than 100 workers are killed and over 20,000 injured each year. Vehicles and equipment operating in and around construction sites are involved in over half of the worker fatalities in this industry.

Data from the Census of Fatal Occupational Injuries (CFOI) indicate that of the 841 work-related fatalities in the highway construction industry between 1992 and 1998, 465 were vehicle or equipment related incidents that occurred in a work zone. The table below summarizes the CFOI data.

Table 1: 1992-1998 Vehicle Related Fatalities - Highway or Street Construction

| Fatality Grouping | Number | Percent |
|---|---------------|----------------|
| Vehicle or equipment related | 465 | 55.3 |
| Other event | 27 | 3.2 |
| Total occurred in work zones: | 492 | 58.5 |
| Vehicle or equipment related | 198 | 23.5 |
| Other event | 151 | 18.0 |
| Total occurred outside of work zone: | 349 | 41.5 |
| Total vehicle fatalities | 841 | 100 |

Of the 465 vehicle and equipment related fatalities within a work zone, 318 (68.4%) resulted from a worker on foot being killed by a vehicle. Construction trucks (61%) and machines (30%) were the primary sources of worker on foot fatalities.

Washington State statistics show a similar pattern. L&I's records indicate that from 1995-2000, there were 7 fatal and 105 nonfatal accidents at construction work sites caused by motor vehicles striking employees. During the past 10 weeks there have been three fatalities in Washington State involving construction vehicles on job sites: Two fatalities caused by dump trucks backing up and one fatality as a result of equipment rolling over.

Rule Development Process:

In December 2000, the department hosted a stakeholder meeting (43 attended) to discuss ways to improve traffic safety on construction sites. At that meeting, a volunteer stakeholder work group was established to help the department develop appropriate rule language. This work group was comprised of representatives from labor, business, the Washington State Department of Transportation and L&I. Using suggestions collected at the December 2000 stakeholder meeting, the work group met six times from January 2001 through July 2001 to develop proposed rule changes.

Work Group Recommendations:

As a result of these meetings, the work group is proposing several new WAC sections (WAC 296-155 601 through 612) covering general traffic safety requirements for construction sites and work zones. (Much of the content in these new sections is the result of combining, reorganizing and reformatting current requirements in Chapter 296-155 WAC. The following is a list of the proposed new minimum requirements contained in WAC 296-155 601 through 612:

- **WAC 296-155-602** requires a site-specific internal traffic safety plan for certain jobs.
- **WAC 296-155-603** requires traffic safety training for on-site and work zone employees.
- **WAC 296-155-604(2)** requires that vehicle operator/driver certification, training and experience be relevant to the vehicle assigned to them.
- **WAC 296-155-605(4)** increases vehicle lighting requirements.
- **WAC 296-155-605(6)** requires that effective communication take place between an employee and a vehicle operator/driver before the employee approaches or boards the operator/driver's vehicle.
- **WAC 296-155-606(4)** requires the use of mechanical devices to eliminate blind spots from vehicles with obstructed views to the rear. If mechanical devices do not eliminate the blind spots, a spotter must be used and the vehicle must not be backed up until the spotter communicates to the driver/operator that it is safe to do so.
- **WAC 296-155-611(3)** requires that the manufacturer's maintenance schedule be followed for all construction/work zone vehicles.
- **WAC 296-155-611(4)** requires that all construction site/work zone vehicle cabs (except passenger cars and pickup trucks) contain a copy of the manufacturer's operating and technical manual.
- **WAC 296-155-611(7)** requires all construction site/work zone vehicle defects, which prevent safe operation and/or threaten an employee's safety be reported to a designated maintenance person.
- **WAC 296-155-611(8)** requires that all construction site/work zone vehicles must be rendered inoperable while repairs or maintenance are performed
- The work group also proposes amending the following WAC sections:
- **WAC 296-155-100 (APP)** to accommodate the proposed internal traffic safety plans and traffic safety-training requirements.
- **WAC 296-155-165 (Lighting and illumination)** adding a performance-based lighting requirement for all outdoor work places.
- **WAC 296-155-200 (Personal Protective Equipment)** rewriting and reformatting the section to increase clarity and increasing the high visibility requirements for safety garments and helmets worn by certain employees on construction sites and in work zones.
- **WAC 296-155-655 (General requirements)** references the new Personal Protective Equipment (PPE) requirements in WAC 296-155-200.

- **WAC 296-155-240 (Employee protection in public work areas)** improve clarity and reference new PPE requirements in WAC 296-155-200 and general requirements in WAC 296-155-601 to 612.
- **WAC 296-155-52530 (Employee protection in public work areas)** improve clarity and reference new PPE requirements in WAC 296-155-200 and general requirements in WAC 296-155-601 to 612.

Several of the new requirements constitute either minor changes or the incorporation of current industry practice. The department believes that the requirements in the underlined sections listed above have the most significant potential for increasing business costs. These five amendments are presented in further detail in the next section.

Significant Rule Changes

The five significant proposed rule changes are presented in detail below.

1. Internal Traffic safety plan

WAC 296-155-602 Site-specific internal traffic safety plans.

(1) Employers on jobs lasting more than one day and where there are more than four workers and one vehicle, with the vehicle being an integral part of the job, must:

- Develop and implement a site-specific internal traffic safety plan that is communicated to all workers on the site or in the zone;
- Maintain and update the plan when appropriate; and
- Keep a current copy of the plan on site and make it available, upon request, to employees, their designated representatives and representatives of the department.

(2) On construction sites or in work zones involving multiple employers where more than one internal traffic safety plan is required, it is the responsibility of the general contractor to make sure that the separate plans are coordinated and communicated to all employers. General contractors may meet this requirement for themselves and their subcontractors by developing a comprehensive plan that addresses all traffic safety issues on the work site.

(3) The site-specific internal traffic safety plan must include:

- The methods used by workers on foot, vehicle operator/drivers and traffic control personnel to communicate with each other.
- Who is responsible for monitoring all internal traffic communication
- A diagram of the site or zone illustrating:
 - a. Traffic patterns, traffic volumes and speed limits;
 - b. Areas where workers on foot are prohibited (pedestrian free areas);
 - c. Locations for storing and servicing materials, vehicles and equipment;
 - d. Location of all vehicle entrances and exits;
 - e. Location of delivery and pickup areas;
 - f. Location of "No-back up" areas;

- g. Size and location of buffer areas and physical barriers that establish "traffic free" zones; and
 - h. Placement of traffic control devices used on public highways according to MUTCD, Part VI (1995 Edition-Revision 4) recommendations and guidelines and that reflect the actual traffic condition and requirements of the site or zone.
- A list of standard terms that identify and describe the type and/or class of vehicles, equipment, machinery and personnel that will be used.

This proposed requirement applies only to those job or work sites where the vehicle is an integral part of the work, and to jobs lasting more than one day involving more than four workers and one or more vehicles. In general, passenger cars and light trucks used by workers for transportation to the job site would not be included in this proposed requirement. The general contractor has the responsibility of coordinating internal traffic safety plans, which means sub-contractors may not have to develop traffic safety plans. The department anticipates that after your business has established an internal traffic safety plan for a project, you may be able to use the existing plan, with only minor modifications, to meet future internal traffic plan requirements.

2. Traffic Safety Training

WAC 296-155-603 Traffic safety training.

(1) Employers who are required to develop and implement a site-specific internal traffic safety plan must provide on site traffic safety training to all site and zone workers in a format that is appropriate and effective.

Note: Examples of acceptable training formats are:

- On site safety orientations.
- Tailgate safety meetings.
- Worker/Operator safety classes.

(2) Safety training must include, but is not limited to, the:

- Procedures for inspecting, maintaining, operating and parking assigned vehicles.
- The importance of being familiar with the manufacturer's manual (owner's manual) when operating or driving any vehicles other than a passenger car or light truck.
- The location, size and shape of vehicle blind areas.
- Vehicle payload limitations and operating grade limitations.
- Traffic patterns, volumes, speed limits and the types of vehicles operating on site;
- The importance of receiving proper training in the use of assigned vehicles.
- The content of the site-specific internal traffic safety plan.

This proposed requirement requires training only when an internal traffic safety plan is mandated. The department has left it up to the employer to determine how the traffic safety training would be conducted. Traffic safety training can be informal and combined with other types of required training.

3. Vehicles with Obstructed Views to the Rear

WAC 296-155-606: Operating vehicles with obstructed views.

(4) All site or work zone vehicles with an obstructed view to the rear must be able to eliminate the obstructed view through the use of one of the following before backing up:

- An operable device that effectively eliminates the obstructed view; or
- A spotter.

Note: When a spotter is used, the vehicle must not back up until the spotter has communicated to the driver/operator that the area to which the vehicle is backing is clear of all ground personnel.

Currently, a construction site vehicle with an obstructed rear view that cannot be eliminated by a mechanical device must have an audible warning device (typically just for backing up) or use a spotter when foot traffic is present. The proposed rule will require an audible warning device and a spotter, when mechanical devices cannot eliminate the obstructed rear view. If mechanical devices eliminate the obstructed rear view, a spotter is not necessary, but the audible warning device is still required. Anyone can serve as a spotter for vehicles; a specialized employee dedicated to serving as a spotter is not required by this rule.

This requirement will not apply to passenger cars, and light trucks. However, light trucks with obstructed rear views or blind spots must use a spotter when backing in an area where foot traffic is present. Mechanical devices that eliminate vehicle blind spots include mirrors; infrared sensing devices and rear mounted video cameras. Note, that on many construction vehicles normal rearview mirrors do not eliminate blind spots. Spotters can communicate to the vehicle driver using hand signals or a radio communication device.

4. Lighting and Illumination – Out doors

WAC 296-155-165: Lighting and illumination.

Current requirement

(1) Indoor and outdoor work place lighting, for both task and non-task activities, must meet the requirements listed in the table below:

Table 2: Indoor and Outdoor Illumination requirements

| Activity | Minimum acceptable average lighting level in an area: (Foot-candles) | A single measurement used to determine the average lighting level* cannot be less than: (Foot-candles) |
|---|--|--|
| Indoor task | 10 | 5 |
| Outdoor task | 5 | 2.5 |
| Non-task activities for both indoor and outdoor | 3 | 1.5 |

Note that the above table is a current lighting requirement that can also be found in the WISHA Safety and Health Core Rules: WAC 296-800-21, effective 9/1/2001.

New requirements

(2) When general lighting of an entire outdoor area is not feasible during hours of darkness or during periods of limited visibility, employers must make sure that sufficient lighting is installed on the site or in the zone to illuminate:

- Potentially hazardous objects;
- Emergency control equipment; and
- Vehicle and worker-on-foot traffic lanes.

(3) Site lighting must not create a disabling glare for workers, vehicle operators and passing motorists.

Note: Some methods of reducing glare are:

- Raising or lowering the height of lighting equipment;
- Using glare-free light balloons and glare screens; and
- Driving through and observing the lighted area from various directions.

Table 2 above, which specifies minimum required indoor and outdoor lighting levels, was brought over to WAC 296-155-165 from the WISHA Safety and Health Core Rules: WAC 296-800-210. This table represents current requirements for construction sites and should not result in the need for additional lighting equipment. The two sub-sections above, WAC 296-155-165 (2) and (3), are new and will require employers to illuminate potentially hazardous objects, emergency equipment, and vehicle and traffic lanes, only when it is not feasible to provide general lighting to an entire outdoor area. In addition employers will be required to limit disabling glare from site lighting. The employer is allowed to choose the most efficient method of meeting the lighting requirements listed above. The ground personnel stakeholder group developed the proposed lighting and illumination requirement.

5. High Visibility Safety Garments

WAC 296-155-200: General requirements for personal protective equipment (PPE).

(9) Construction site and work zone employees, whose duties are performed during daylight hours in areas and under circumstances where they are exposed to hazards created by moving vehicles, must, at a minimum, wear:

- A high visibility safety garment designed according to Class 2 specifications in ANSI/ISEA 107-1999, American National Standard for High-Visibility Safety Apparel.
 - a. Specifically, a garment containing at least 775 square inches of background material and 201 square inches of retroreflective material that encircles the torso and is placed to provide 360 degrees visibility around the employee.
 - b. The acceptable high visibility colors are fluorescent yellow/green, fluorescent orange/red or fluorescent red.
 - c. This high visibility safety garment must always be worn as an outer garment; and

- When required by WAC 296-155-205 Head Protection, a high visibility hard hat, whose color is white, yellow, yellow-green, orange or red.
- When snow or fog limit visibility, the employee must wear pants of any high visibility color other than white.

(10) Construction site and work zone employees, whose duties are performed during hours of darkness in areas and under circumstances where they are exposed to hazards created by moving vehicles, must, at a minimum, wear:

- A high visibility safety garment designed according to Class 2 specifications in ANSI/ISEA 107-1999, American National Standard for High-Visibility Safety Apparel over white coveralls, or other coveralls or trousers that have retroreflective banding on the legs designed according to ANSI/ISEA 107-1999 standards; and
- A high visibility hard hat that is marked with at least 12 square inches of retroreflective material applied to provide 360 degrees of visibility.
- For the purpose of this rule, "hours of darkness" means one-half hour before sunset and one-half hour after sunrise.
- When snow or fog limit visibility, pants, coveralls, or rain gear in a highly visible color with retroreflective banding on the legs designed according to ANSI/ISEA 107-1999 must be worn.

The ground personnel stakeholder group developed this proposed rule change, which mirrors the current garment requirements for flaggers. Many construction sites or work zones already follow these visibility requirements. A high visibility garment with an ANSI/ISEA label will meet this proposed requirement.

Assessing Economic Impact

The Regulatory Fairness Act, 19.85 RCW, requires that the economic impact of proposed regulations on small businesses be examined relative to their impact on large businesses. The Act outlines the requirements for a Small Business Economic Impact Statement (SBEIS). For the purposes of an SBEIS the term small business is defined as a business entity that has the purpose of making a profit and has fifty or fewer employees. The agency must prepare an SBEIS when a proposed rule, or rule amendments, have the potential of placing a more than minor economic impact on business.

Industries potentially impacted by the proposed rule amendments

The department has identified the following industries that potentially would be impacted by the proposed amendments to Chapter 296-155 WAC. The information is from the Labor Market and Economic Analysis division of the Employment Security Department and represents 1998 employment numbers.

Table 3: Industries groups potentially impacted by the proposed amendments

| SIC | Description | Small Business | Large Business | Total |
|--|---------------------------------|----------------|----------------|---------------|
| 1521 | Gen. Bldg contractors | 17,597 | 1,369 | 18,966 |
| 1541 | Industrial bldg & warehouses | 1,253 | 2,187 | 3,440 |
| 1542 | Non-residential const | 7,498 | 5,461 | 12,959 |
| 16 (all) | Heavy construction | 10,446 | 7,991 | 18,437 |
| 1771 | Concrete work | 4,608 | 516 | 5,124 |
| 1791 | Structural Steel erection | 779 | 954 | 1,733 |
| 1794 | Evacuation work | 2,291 | 263 | 2,554 |
| 1795 | Wrecking & demolition | NA | NA | 456 |
| 4813* | Telephone communications | 3,556 | 31,440 | 34,996 |
| 491* | Electrical services | 4,075 | 11,351 | 15,426 |
| 493* (estimate) | Gas production and distribution | 550 | 2,600 | 3,150 |
| Total employees at construction or work sites | | | | 66,348 |

* The department estimates that only 5 percent of the employees at these SIC codes will be engaged in activities at construction sites or work sites.

Economic survey

A cover letter, fact sheet and economic survey were sent to approximately 700 individuals representing approximately 650 businesses. A total of 92 surveys were returned of which 86 contained enough information to be used in the economic analysis, giving a survey response rate of approximately 13 percent. Forty six of the returned surveys were from small businesses and 40 were from large businesses.

Estimating compliance costs for the proposed amendments

The responses from the 86 surveys were used to estimate compliance costs for small and large business sectors. Costs were also estimated for each of the five significant proposed amendments that were included in the survey. Low, central and high compliance costs scenarios were developed and are described in detail below.

Data Treatment

While the survey data was generally used as reported, a few respondents may have misinterpreted the questions, based their responses on incorrect assumptions, or responded in a strategic manner, thus giving unrealistically high cost numbers. There are two commonly used techniques for dealing with unrealistically high survey results or outliers. The first is alpha trimming where a small number of high and low outliers are removed from the data set. The second technique involves using internal expertise to establish an upper bound estimate for a particular survey question. The second technique was used for the high visibility garment cost estimate (maximum costs of 30, 50 or 70

dollars per garment depending on scenario), and could be used to set an upper time limit for the training element of the proposed rule. However, upper bound limits cannot be easily set for the other survey cost elements, as this would require detailed knowledge of the industry practices, the particular business being surveyed, and potential job sites. Only the business owner/manger has detailed knowledge of the first two components and is familiar with the third (potential future job sites). Out of necessity the alpha trimming technique was used to deal with data outliers. Three high cost surveys were removed, as were three low cost surveys, for a total of six surveys removed from the data set.

Two respondents said that they that always used spotters, but also included compliance costs for the spotter requirement of the proposed rule. These values were not included in the analysis as compliance costs for the proposed changes.

Several survey respondents determined that they were in compliance with the illumination requirement section and also put down a compliance cost. These cost values were not included in the analysis. A few respondents predicted increased costs, but were unable to estimate their costs. Imputed compliance costs were added for these respondents.

Survey respondents selected whether they were, or weren't, in compliance with the proposed requirements for high visibility garments. If not currently in compliance with the proposed, the respondents were to estimate the number of high visibility garments necessary for their ground personnel and the associated cost of these garments. As with the other section, a few respondents stated that they were in compliance, yet also put down a compliance cost. These costs were not included in the analysis. A few imputed cost values were added for those unable to estimate compliance cost.

Assumptions involved in estimating the economic impact of the proposed rule.

It was assumed that a manager/owner would prepare the traffic safety plan at a cost of 40 dollars per hour. In the survey owners estimated the number of plans per year and time required for each plan. For the entire survey group the estimated average and median number of annual plans per business was 33 and 6 respectively, while the average and median time per plan was estimated at 5.9 and 2.0 hours respectively. Note the large differences between the average and median values. This is indicative of skewed response distributions: the distributions are not normally distributed, and have a long tails towards the right, or high value, side of the distribution curve. When encountering skewed response distributions economic analysts often use median values instead of average values. Under the proposed rule general contractors are expected to coordinate traffic plan development and implementation. For this analysis it was assumed that subcontractors respondents would spend half of the traffic plan preparation time indicated in their survey responses: general contractors would assume more responsibility for plan preparation.

For training workers on the elements of the traffic safety plan, employee costs were assumed to be 25 dollars per hour. Survey respondents estimated the time required to train the workers on the elements of the traffic safety plan. It was assumed that all construction workers would receive training. Average, weighted average and median training times were used in the cost calculations.

Survey recipients were asked to estimate the cost for the proposed requirement to reducing worksite hazards from vehicles with obstructed views. Respondents estimated the number of hours of spotter time necessary to comply with the proposed requirement, and the cost of “mechanical devices” to reduce vehicle blind spots. A number of respondents thought the requirement would impact them, but were unable to estimate costs, giving responses like “large”, “huge”, “unknown” or “do not know”. These “incomplete” surveys do not represent zero cost responses, so an imputed compliance cost, derived using the average or median compliance cost per construction worker, derived from the completed surveys, was calculated.

Assumptions for the high, intermediate and low cost scenarios

- Developing the internal traffic safety plan: same approach for all three cost scenarios.
- Employee training costs:
 1. High training costs = number needing training X half of total number of sites X average training time X \$25/hr.
 2. Intermediate training costs = number needing training X 3 training sessions per year X average (weighted) training time X \$25/hr.
 3. Low Intermediate training costs = number needing training X 1 training session per year X median (weighted) training time X \$25/hr.
- Vehicles with obstructed views to the rear: Imputed costs for spotters and mechanical devices
 1. High and intermediate cost scenarios = number of construction workers at responding business x average annual cost for spotters or mechanical devices (per construction worker)
 2. Low cost scenario = number of construction workers at responding business x median annual cost for spotters or mechanical devices (per construction worker)
- Workplace illumination requirements: Same for all three cost scenarios
- High visibility garment requirement: An upper bound was set for the high garment requirement.
 1. High cost scenario – upper bound set at 70 dollars per construction worker.
 2. Intermediate cost scenario – upper bound set at 50 dollars per construction worker.
 3. Lower cost scenario – upper bound set at 30 dollars per construction worker.

Estimated Compliance Costs

Compliance costs were estimated using the adjusted survey results, and the assumptions and scenario criteria listed above. Costs were determined for small business (those businesses with 50 or fewer employee) and large business (51 or more employees), and all business (large and small). Table 1 illustrates the estimated compliance costs for small and large business using the high, intermediate and low cost methods. To better compare the relative impact of these costs, they are expressed as cost per employee and

construction worker (approximately 75 percent of employees were categorized as construction workers).

Table 4: Estimate compliance costs for small and large businesses

| Cost Scenario | Category | Small Business | Large Business | Overall |
|--------------------------|------------------------|-----------------------|-----------------------|----------------|
| High Cost | Total rule cost | \$401,274 | \$4,658,353 | \$5,059,627 |
| | Costs per business | \$12,540 | \$120,212 | \$67,317 |
| | Cost per employee. | \$572 | \$566 | \$566 |
| | Cost per const. worker | \$717 | \$798 | \$791 |
| Intermediate Cost | Total rule cost | \$399,451 | \$2,774,403 | \$3,173,854 |
| | Costs per business | \$13,774 | \$71,139 | \$46,674 |
| | Cost per employee. | \$569 | \$337 | \$355 |
| | Cost per const. worker | \$713 | \$476 | \$496 |
| Low Cost | Total rule cost | \$390,210 | \$2,560,389 | \$2,950,600 |
| | Costs per business | \$9,517 | \$65,651 | \$36,882 |
| | Cost per employee. | \$556 | \$311 | \$330 |
| | Cost per const. worker | \$697 | \$439 | \$461 |
| Total employees | Employees | 702 | 8,234 | 8,936 |
| | Const. workers | 560 | 5,834 | 6,394 |

The intermediate cost scenario in Table 4 reveals that the estimated financial impact is slightly higher for the small business sector: costs per employee for small business are 70 percent greater relative to large business costs: 569 dollars versus 337 dollars per employee. Expressed on a construction worker basis estimated compliance costs are 50 percent higher for small business: 713 dollars versus 476 dollars per construction worker.

Table 5 summarizes the proposed rule costs by small and large business category for the five key sections of the rule that were included in the survey. The section of the survey dealing with reducing worksite hazards from ground personnel exposure to construction site vehicles with obstructed views (section 3) contributed the largest amount to total compliance cost: approximately 257 dollars per employee or 72 percent of total cost. The estimated cost for spotters of backing vehicle with obstructed views (a sub-category cost of section 3) was 163 dollars overall and accounted for 46 percent of total cost. Costs for traffic safety training and high visibility garments were relatively small at 23 and 5 dollars per employee respectively.

Table 5: Component compliance costs for small and large business

| Survey section* | Component Description | Small Business | | Large Business | | All | |
|-----------------|-------------------------------|---------------------------|-------------------|---------------------------|-------------------|---------------------------|-------------------|
| | | Component compliance cost | Per employee cost | Component compliance cost | Per employee cost | Component compliance cost | Per employee cost |
| 1 | Internal traffic safety plan | \$45,235 | \$64 | \$300,580 | \$37 | \$345,815 | \$39 |
| 2 | Traffic safety training | \$18,572 | \$26 | \$184,978 | \$22 | \$203,550 | \$23 |
| 3 | Vehicles with obstructed view | \$295,905 | \$422 | \$1,996,379 | \$242 | \$2,292,284 | \$257 |
| | spotter | \$249,315 | \$355 | \$1,205,498 | \$146 | \$1,454,813 | \$163 |
| | mech. devices | \$46,590 | \$66 | \$790,881 | \$96 | \$837,470 | \$94 |
| 4 | Night lighting requirements | \$30,189 | \$43 | \$261,365 | \$32 | \$291,555 | \$33 |
| 5 | High visibility garments | \$9,550 | \$14 | \$31,100 | \$4 | \$40,650 | \$5 |
| Total | | \$399,451 | \$569 | \$2,774,403 | \$337 | \$3,173,854 | \$355 |

Categorical survey responses are summarized by survey section in Table 6. As expected the proposed requirement of an internal traffic safety plan impacts large business more often than small business: requirement would “apply frequently” to 30 percent of small business and 59 percent of large business. A sizable fraction, 49 percent, of large businesses currently implement some type of traffic control plan at their construction sites, while only 27 percent of small business does so. Both business size categories project about the same amount of training per employee, 30 minutes for small business versus 33 minutes for large business. Similar fractions of large and small business use spotters for vehicles with obstructed rearward views: 19 percent of small and 18 percent of large always use spotters. A larger fraction of large business will meet the proposed illumination requirements for work during hours of darkness: 80 percent of large business and 67 percent of small business. Similarly a larger fraction of large business meets the proposed high visibility garment requirement for ground personnel: 72 percent for large business and 57 percent for small business.

Table 6: Summary of categorical survey responses

| Survey section | Topic | Category | Small Business | Large Business |
|----------------|------------------------------|--------------------|----------------|----------------|
| 1 | Internal traffic safety plan | Applies frequently | 14 | 23 |
| | | | 31% | 58% |
| | | Applies occasion. | 13 | 12 |
| | | | 29% | 30% |
| | | Applies rarely | 12 | 5 |
| | | | 27% | 13% |

| Survey section | Topic | Category | Small Business | Large Business |
|----------------|-------------------------------|----------------------------------|----------------|----------------|
| | | Never applies | 6 | 0 |
| | | | 13% | 0% |
| | | Currently have plans | 12 | 19 |
| | | | 27% | 48% |
| | | Do not have plans | 33 | 21 |
| | | | 73% | 53% |
| 2 | Traffic safety training | No. sites requiring training | 568 | 1639 |
| | | Ave no. sites per business | 13 | 41 |
| | | Average training time (min.) | 30.3 | 33 |
| | | <i>weighted</i> | 29.8 | 25.6 |
| | | Median training time (min.) | 29.8 | 26 |
| | | <i>weighted</i> | 19.1 | 17.7 |
| 3 | Vehicles with obstructed view | Always use spotters | 8 | 8 |
| | | | 19% | 20% |
| | | Sometimes use spotters | 27 | 26 |
| | | | 63% | 65% |
| | | Rarely use spotters | 3 | 5 |
| | | | 7% | 13% |
| | | Never use spotters | 5 | 1 |
| | | | 12% | 3% |
| | | Additional effort necessary | 22 | 26 |
| | | | 52% | 67% |
| | | No additional effort necessary | 20 | 13 |
| | | | 48% | 33% |
| 4 | Night lighting | Work during darkness | 28 | 36 |
| | | | 62% | 90% |
| | | Do not Meet requirement | 17 | 4 |
| | | | 19 | 29 |
| | | | 68% | 81% |
| | | Do not Need additional lighting | 9 | 7 |
| | | | 15 | 15 |
| | | | 41% | 41% |
| 5 | High visibility garments | Do not Meet garment requirement | 22 | 22 |
| | | | 24 | 27 |
| | | | 56% | 73% |
| | | Do not | 19 | 10 |
| | | | 44% | 27% |
| | | Number garments required | 254 | 1314 |
| | | Average number garments required | 13 | 94 |

Note responses reflect respondent's perception of whether the proposed rule, or rule subsection applies.

Conclusions

The survey results reveal that there will be a somewhat greater financial impact on small businesses if the proposed rule is adopted. Estimated compliance costs were 70 percent higher for the small businesses surveyed: average large business employee cost of 337 dollars versus average small business employee costs of 569 dollars. Expressed as costs per construction worker the estimated costs were 50 percent higher for small businesses: 713 dollars for small businesses versus 476 dollars per construction worker at large businesses. The projected statewide compliance costs are 22 million dollars.

The department believes that the actual compliance costs will be lower than the survey derived compliance costs and that the small business costs in particular are significantly lower. The reasons for these beliefs are as follows:

1. Even with data trimming, and the use of median values in some calculations there is still reason to believe that responses were high. Some respondents may have believed that a traffic plan was required at every worksite, or that smaller vehicles like pickup trucks would always require a spotter when backing up.
2. The overall response rate for the smaller businesses was low. The department believes that the cause of the low response rate could be that many small businesses realized that the rule did not apply to them and therefore did not bother to respond to the survey. This effect would bias the average compliance cost figure for small businesses upward.
3. Many large businesses operate as general contractors, while most small businesses are subcontractors. The proposed rule requires general contractors to insure that subcontractors comply with the rule, in effect placing a higher burden on the general contractor. The department believes that this higher burden is not adequately reflected in the survey results,

The department concludes that there will be a disproportionate impact on small businesses and has taken steps to mitigate the impact. The department has undertaken the following mitigation steps.

1. To trigger the rule, a job must last more than one day and have more than four workers and one vehicle, with the vehicle being an integral part of the job. This exempts some small businesses from having to comply with the proposed rule.
2. The department will provide consultation services to businesses to assist them in complying with the proposed rule.